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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/748,344	12/29/2003	Kristopher J. Frutschy	42P17768	8138

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EXAMINER

BREWSTER, WILLIAM M

ART UNIT	PAPER NUMBER
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2823

DATE MAILED: 03/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/748,344

Applicant(s)

FRUTSCHY, KRISTOPHER J.

Examiner

William M. Brewster

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 6 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>033104</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 5-8, 11-13, 16, 17, 22-24, 29, 30, 33 are rejected under 35 U.S.C. 102(b) as being anticipated by Kazunori et al., JP Publication No. 2000-260826.

Kazunori anticipates a method of coupling a semiconductor die with a next level package, comprising:

In fig. 1, providing at least one interconnect 6,  
arranging the semiconductor die 5, the next level package 4, and the at least one interconnect 6 such that the at least one interconnect is disposed so as to be capable of joining the semiconductor die to the next level package,  
providing an inductor 2A capable of generating an electromagnetic flux,  
generating an electromagnetic flux, p. 2, ¶ 10;  
exposing the at least one interconnect to the electromagnetic flux to induce heating in the at least one interconnect, and  
heating the at least one interconnect to couple the semiconductor die with the next level package, p. 2, ¶ 11,

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limitations from claim 2, 18, the method of claim 1, 17, wherein the heating preferentially heats the semiconductor die over the next level package, fig. 2, p. 2, ¶ 13-14;

limitations from claims 5, 22, the method of claims 3, 20, wherein the at least one interconnect comprises an array of interconnects, fig. 1, array 6;

limitations from claims 6, 23, the method of claim 5, 22, wherein the array of interconnects is formed on the semiconductor die, fig. 1;

limitations from claims 7, 24, the method of claims 6, 23, further comprising arranging the inductor such that the semiconductor die 5 is interposed between the inductor 2A, and the next level package, fig. 2;

limitations from claims 8, 13, 25, 30, the method of claims 7, 12, 24, 29, wherein the next level package is a substrate, 4, circuit boards are by definition is a substrate;

limitations from claims 11, 16, 28, 33, the method of claims 7, 12, 24, 29 wherein the next level package is a printed wiring board, a.k.a. circuit board, p. 2, ¶ 6;

limitations from claims 12, 29, the method of claims 6, 23, further comprising arranging the inductor such that the next level package is interposed between the inductor and the semiconductor die, fig. 1;

limitations from claim 18, the method of claim 17, wherein the heating preferentially heats the at least one interconnect over the at least one next level package, p. 2, ¶ 10-11.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3, 4, 20, 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kazunori as applied to claims 1, 2, 5-8, 11-13, 16, 17, 22-24, 29, 30, 33 above, and further in view of Ameritherm Inc. Catalog, pp. 1-3, from the IDS.

Kazunori does not specify the high frequency numeracy, but Ameritherm. Ameritherm teaches 3. The method wherein generating an electromagnetic flux comprises providing an alternating electric current having a frequency exceeding 1 megahertz, wherein generating an electromagnetic flux approximately 13.2 megahertz: 123.56 MHz (+- 5%), under 1 kW\*/High Freq.. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to recognize that combining Ameritherm's invention with Kazunori's invention would have been beneficial because the invention provides for readily available inducting heaters to be used.

Claims 9, 10, 14, 15, 26, 27, 31, 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kazunori as applied to claims 1, 2, 5-8, 11-13, 16, 17, 22-24, 29, 30, 33 above, and further in view of Fujii et al., US Publication No. 2003/0006489 A1.

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Kazunori does not specify a flexible substrate or interposer, but Fujii does. Fujii teaches the method, wherein the next level package is a flexible substrate, wherein the next level package is an interposer, p. 1, ¶ 1. Fujii gives motivation in p. 2, ¶ 17. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to recognize that combining Fujii's invention with Kazunori's invention would have been beneficial because the invention provides for very minute wiring conductors can be easily formed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William M. Brewster whose telephone number is 571-272-1854. The examiner can normally be reached on Full Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 571-272-1855. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

22 March 2005  
WB

*William M. Brewster*